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**EXCESSIVE AMENDMENT OF CONSULTANT CONTRACTS
BY THE
MASSACHUSETTS WATER RESOURCES AUTHORITY**

Joseph R. Barresi
Inspector General

March 1990

The Commonwealth of Massachusetts
Office of the Inspector General

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Excessive Amendment of Consultant Contracts by the
Massachusetts Water Resources Authority

On March 13, 1989, the Inspector General issued a report criticizing the Massachusetts Water Resources Authority's misuse of contract amendments to procure consultant services. That report found that the Authority had imprudently authorized amendments totalling \$42.5 million to 42 consultant contracts.¹ Fully half of these contracts had doubled -- and in some cases tripled -- in price as a result of unadvertised amendments.

The Authority's behavior in the ensuing year has not improved. The Authority has failed to curb its practice of awarding huge, no-bid increases to consultants with pre-existing contracts. That practice invites waste and abuse.

Since the Inspector General's report last year, the Authority has added another \$8.8 million in no-bid work to 14 of the 42 consultant contracts identified in that report as having already been excessively amended. Another 19 contracts -- in addition to the 42 cited in 1989 -- have been imprudently amended by more than \$24 million.² In all, the MWRA has since its inception imprudently authorized amendments totalling more than \$75 million to 60 consultant contracts. On 30 of these contracts, amendments had the effect of at least doubling the contract price.

The 60 contracts with excessive amendments now represent a total of \$172 million in consulting work. Of that amount, the original contract amounts total \$96 million, to which the MWRA has added \$76 million through no-bid amendments. For every

¹ By way of a prudent standard, cumulative contract amendments in excess of 10 per cent of the original cost should be regarded as cause for concern.

² See Appendices 1-4 for documentation by size of contract increase and by individual contract.

dollar of work originally awarded on these contracts, \$.79 has been added by amendment.

The largest single inappropriate amendment since last year's report was a \$5.2 million addition to a contract with New England Fertilizer Company (NEFCo) for resident inspection and construction administration for the Authority's pelletizing and related facilities at the Fore River Staging Area in Quincy and other sites (Table 38). The original contract was awarded in 1988 for \$7.1 million. The Authority did not conduct a fair competition or shop for the best price in awarding to NEFCo the work covered by the amendment. Instead, the original contract provided that the Authority would define the final scope and negotiate a price for these services at a later time. The Authority approved the amendment in November, 1989, for \$5.2 million, bringing the total contract to \$12.3 million -- a 73 per cent increase.

The next largest amendment was a \$2.3 million addition to a contract with the firm of CH2MHill for facilities planning to remedy combined sewer overflows (Table 40). The original contract was awarded in 1989 for \$1.8 million. Without further competition, the MWRA has added three amendments totalling \$8.8 million. The contract is now worth \$10.7 million -- more than five times the original award.

The Authority awarded \$2.1 million -- the third largest amendment since last year's report -- to Camp, Dresser & McKee (CDM) for additional work on the Charlestown pumping station. The original contract, for \$856,000, had been awarded to CDM by the Metropolitan District Commission in 1984. More than five years later, with no competition, the MWRA amended the old contract. The amendment more than tripled the original contract price (Table 24).

This CDM amendment is noteworthy in another respect. It brings the total of MWRA amendments awarded to CDM over the MWRA's five-year lifespan to \$18.9 million -- one-quarter of the total cost of the MWRA's no-bid amendments to consultant contracts.³

A contract with Parsons Brinkerhoff Quade & Douglas, Inc., has mushroomed since the Inspector General's 1989 report (Table 12). New amendments within the last year added \$832,527 to the On-Shore Marine Transportation Facilities design contract originally awarded in 1987 -- less than two years earlier -- for \$490,000. In all, the MWRA Board of Directors has approved amendments of \$1.1 million, more than tripling the contract to a total cost of \$1.6 million.

On some contracts, the increases have come in a single, massive dose. A 1987 contract with V.F.L. Tech for \$775,000 nearly tripled on the strength of a single \$1.4 million amendment last June and currently is worth \$2.2 million. (Table 39). Similarly, the Authority awarded a \$438,000 contract in 1989 to Frederick R. Harris, then eight months later added \$781,000; the contract is now worth \$1.2 million (Table 43).

In other cases, the increases have been made through a series of amendments. A contract with Bryant Associates (Table 15) for design work on Deer Island Early Site Preparation has been amended three times since the Inspector General's 1989 report. Together with one earlier amendment, the no-bid additions total \$640,000 on a contract awarded in 1988 for \$1.3

³ Through no-bid amendments the MWRA has added \$12 million to a \$4.8 million contract with CDM (Table 2); \$3.8 million to a \$1.6 million CDM contract (Table 3); and \$861,000 to a \$1 million CDM contract (Table 13), in addition to the contract discussed above.

million. The increases amount to 48 per cent over the original contract amount in just 21 months.

On May 10, 1989, the Authority added Amendment #2 to its Program and Construction Management (P/CM) contract with Kaiser Engineers, Inc., at a cost of \$887,459 (Table 26). Shortly before this contract was executed in 1988, the Inspector General and the State Auditor warned that the Authority's vague scope of services and ill-defined expectations virtually ensured later cost increases. In just over one year, the Authority authorized \$1.9 million in no-bid additions to this contract, increasing the contract cost by 10.5 per cent to a total of \$19.8 million.⁴

Most of the new work added to the Kaiser contract should have been anticipated and could have been procured competitively in the first place. For example, one amendment to the Kaiser contract includes nearly a half-million dollars for construction management of the early site work on Deer Island -- the prospect of which was obviously known to the Authority when the Kaiser contract for construction management was first procured. The rest of the no-bid tasks should have been awarded competitively under separate contracts.

Last summer, Authority staff demonstrated an understanding that price-comparison saves money for the ratepayers. The project in question was design of a "roll-on/roll-off" ramp at

⁴In calculating the true growth of this contract, we have deducted from the original contract award, and from subsequent amendments, approximately \$500,000 which the MWRA allocated for a management information system. Prior to awarding the contract, the MWRA had decided to procure the system separately, but nevertheless included the cost in the 1988 Kaiser contract and subsequently "reduced" the contract by amendment. Netting out of this pre-planned reduction provides a more accurate picture of how the contract has increased. See Table 26.

the Fore River Staging Area. The task had earlier been approved by the Authority's board as a no-bid addition to the burgeoning Parsons Brinckerhoff contract, which was already 261 per cent above the cost of the contract (Table 12). To its credit, the Authority's staff thought the \$122,000 fee sought by Parsons Brinckerhoff for this particular task to be excessive. But instead of procuring the work through open competition, the staff turned to another insider, C.E. Maguire, to make a competitive offer. Maguire quoted a \$95,000 fee, and the Authority added the task to Maguire's menu of unadvertised assignments. (Table 5). Unfortunately, the Authority has failed to learn or apply the obvious lesson: shop around.

The Authority shows little willingness to award consultant work prudently and fairly. Huge, no-bid additions to consultant contracts render any competition little more than an empty exercise: the real work and the real money come later, through unadvertised deals. That is no way to conduct public business.

In the end, rate-payers are stuck with higher costs. This is so for four reasons:

No-bid contract amendments invite inflated prices.

Without competition, the Authority is in effect awarding new work on a sole-source basis. Fair and open competition would provide a prudent safeguard against unreasonable consultant charges. Instead, rate-payers now get billed for the consequences of closed-door deals between the Authority's staff and favored consultants.

No-bid contract amendments invite inferior quality goods and services. Without competition, the Authority cannot conclude that it has chosen the best qualified -- or even a well qualified -- contractor for the task. The reasons

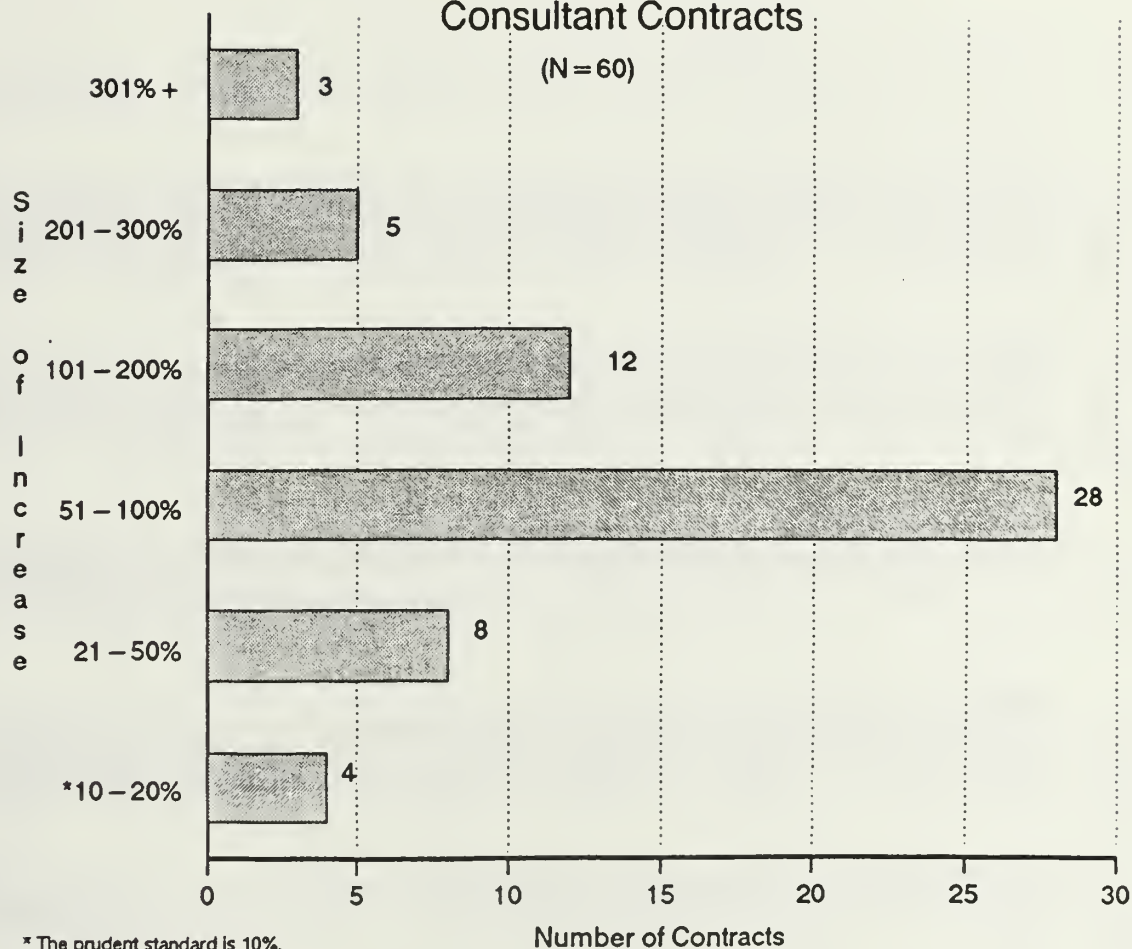
for selecting a consultant for the original contract may be irrelevant to the new work.

No-bid contract amendments invite favoritism and outright corruption. Awarding new work without open and fair competition favors contractors who curry the goodwill of MWRA managers. The Authority's excessive use of no-bid amendments, and the Board's total abdication of a serious effort to curb the practice, open the door to abuse.

No-bid contract amendments invite "low-balling" on Authority contracts. When the Authority signs a consultant contract, the initial price is meaningless. Consultants can plainly see that the Authority routinely doles out millions of dollars in extra work on a no-bid basis -- at times, before the ink on the original contract is dry.

Obviously, the Authority will not reform itself. A bill now before the legislature -- co-authored by Rep. Kevin Blanchette and the Inspector General -- would limit the imprudent procurement practices of the MWRA and other independent State authorities. Enactment of this legislation is essential.

Excessive Increases to MWRA Consultant Contracts



MWRA Amendments by Size of Increase

Size of Increase (% range)	Total MWRA Amendments	Number of Contracts
301+	16,258,007	3
201-300	21,667,147	5
101-200	9,414,710	12
51-100	18,176,585	28
21-50	3,640,341	8
10-20	6,581,144	4

• Of the 60 contracts with excessive amendments, one-third (20) have more than doubled through no-bid increases.

• These 20 contracts had amendments totalling \$47 million in no-bid work.

Appendix 2

1990 REPORT

Contract Name	Consultant	Contract#	Original MWRA Amount	Auth'n Date	Total MWRA Amendments	Total MWRA Authorization	% Inc
1 Wellesley Sewer Design	SEA	5346	1,183,737	12/6/84	7,216,018	8,399,755	610
2 Deer Island Secondary Trmt	Camp, Dresser & McKee	5526	4,757,285	4/3/86	12,086,532	16,843,817	254
3 Clinton Wastewater	Camp, Dresser & McKee	5250 & 5440	1,655,608	1/1/79	3,763,864	5,419,472	227
4 Nut Island Sludge Mgmt	Havens & Emerson	5660	1,275,784	1/9/81	1,094,461	2,370,245	86
5 Deer and Nut Island Marine	C.E. Maguire	5521	900,000	2/25/87	2,536,493	3,436,493	282
6 Residuals Mgmt Facilities	Black & Veatch	5664	5,435,357	8/27/86	4,370,736	9,806,093	80
7 Water Transmission Designs	Black & Veatch	5185	1,953,169	10/23/87	1,990,578	3,943,747	102
8 Boston Low Services	Black & Veatch	5120	328,261	8/23/84	427,441	755,702	130
9 Commercial Point/Fox Point	Hayden Wegman	5755	345,462	1/0/0	625,693	971,155	181
10 M1S Needs Assessment	Coopers & Lybrand	5906	310,000	10/1/86	610,000	920,000	197
11 M1S Oversight Services	Systems Builders	5922A	45,000	1/29/88	75,000	120,000	167
12 On-Shore Marine Transp	Parsons Brinkerhoff Quade Douglas	5519	490,000	9/16/87	1,131,779	1,621,779	231
13 Engineering Mgmt Services	Camp, Dresser & McKee	5853	1,000,000	1/0/0	861,432	1,861,432	86
14 Deer Island Lead Design Eng	Metcalf & Eddy	5534	24,000,000	7/13/88	4,252,051	28,252,051	18
15 Deer Island Early Site Prep	Bryant Associates	5528	1,340,949	3/30/88	639,606	1,980,555	48
16 CSO Technical Assistance	CH2M Hill	5790	50,000	4/2/86	200,000	250,000	400
17 Deer Island Electrical Equip	Alonzo B. Reed Co.	5510 & 5512	187,061	6/27/84	314,894	501,955	168
18 Technical Support Svcs	Cambridge Analytical Assoc	586-0930-11A	250,000	4/16/86	330,000	580,000	132
19 Deer Island Pumping St	Havens and Emerson/F B O D	5452 & 5453	1,860,963	10/30/85	1,432,519	3,293,482	77
20 East Boston Pumping St	Metcalf and Eddy	5361	1,833,648	6/11/86	2,325,192	4,158,840	127
21 Deer Island Primary Sed	Beta Engineering	5471	379,480	6/7/85	263,345	642,825	69
22 Braintree/Weymouth Intercep	C. E. Maguire	5312	675,762	11/26/84	(140,484)	535,278	-21
23 Framingham Extension Sewer	Anderson-Nichols & Co.	5318	842,841	6/30/83	485,243	1,328,084	58
24 Charlestown Pumping Station	Camp Dresser & McKee, Inc.	5355	855,558	3/8/84	2,148,479	3,004,037	251
25 Aqueduct Transfer Hydroelec.	Morrison-Knudsen Engineers	5030	325,000	7/1/82	195,200	520,200	60
26 PFCM for Deer Island WWTP	Kaiser Engineers, Inc.	5535	17,910,256	4/13/88	1,867,879	19,778,135	10
27 Meter Modernization	Bethel, Duncan & Assoc.	5181	373,955	2/25/87	315,089	689,044	84
28 Industrial Waste Sample Analy	Cambridge Analytical Associates	12	1,200,000	8/ /87	300,000	1,500,000	25
29 North System Grit & Screening	R. Zoppo Co., Inc.	5026	1,715,082	2/19/86	1,057,719	2,772,801	62
30 Unemployment Cost Control	Jon-Jay Associates	38	1,500	2/ /88	1,000	2,500	67
31 Lynn Pipeline Soil	GHR Engineering	5114	139,447	7/13/88	36,300	175,747	26
32 Materials Testing Service	CWB Associates	5274	100,000	10/ /86	84,000	184,000	84
33 Technical Assistance	HMM Associates	5291	75,000	1/19/89	60,606	135,606	81
34 Hingham Pump Station	Anderson-Nichols and Co.	5370	358,943	6/24/82	310,691	669,634	87
35 Wastewater Metering Program	Whitman & Howard	5399	663,275	2/25/87	396,662	1,059,937	60
36 Risk Management Program	Tillinghast	5553	184,880	9/14/88	59,600	244,480	32
37 Interim Disinfection-Deer Isl.	E.C. Jordan	5555	410,000	1/27/88	285,000	695,000	70
38 Sludge Pelletizing Facility	New England Fertilizer	5652	7,110,572	3/15/88	5,187,572	12,298,144	73
39 Deer Island Scum	V.F.L. Tech	5674	775,000	10/28/87	1,425,000	2,200,000	184
40 CSO facilities	CH2M Hill	5791	1,825,931	11/4/87	8,841,989	10,667,920	484
41 Technical Services-FRSA	E.C. Jordan	5817	250,000	10/26/88	500,000	750,000	200
42 Nut Island Switchgear	Charles I. Main	5855	40,000	7/29/87	9,383	49,383	23
43 Per-nnel Ferry Design	Frederick R. Harris	5596	437,685	5/10/89	780,912	1,218,597	178
44 Wat. Supply and EIR	Wallace, Floyd	5001	4,112,583	2/9/82	1,585,401	5,697,984	39
45 DI Primary Treatment Fac.	Malcolm Pirnie, Inc.	5529	2,455,745	5/24/89	986,614	3,442,359	40
46 Bell Island Siphon	Fay Spofford	5305	49,000	7/ /83	23,437	72,437	48
47 Sluice Gate Rehab	SEA	5255	141,600	12/16/87	15,585	157,185	11
48 EE/HVAC Services	Anderson Nichols	5270	75,000	1/28/87	75,000	150,000	100
49 Mechanical Eng Services	Havens & Emerson	5272	50,000	1/28/87	50,000	100,000	100
50 Structural Eng Services	DMC Engineering	5273	50,000	1/28/87	50,000	100,000	100
51 Environmental Testing Svcs	Energy & Environmental Eng	5275	100,000	1/28/87	100,000	200,000	100
52 Geotechnical Eng Services	Goldberg, Lozano & Assoc.	5276	50,000	1/28/87	50,000	100,000	100

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53 Surveying Eng Services	5277	50,000	1/28/87	50,000	100,000	100
54 Southern System Project	5396	2,200,000	1/22/86	436,629	2,636,629	20
55 Water Transp. Facilities	5525	1,200,000	1/29/86	977,737	2,177,737	81
56 Title Exam-Residual Sites	5665	5,000	1/21/88	10,000	15,000	200
57 EE/HVAC Services	5801	75,000	1/28/87	75,000	150,000	100
58 Mechanical Eng Svcs	5803	50,000	1/28/87	50,000	100,000	100
59 Structural Eng Svcs	5804	50,000	1/28/87	50,000	100,000	100
60 Surveying Eng Svcs	5808	50,000	1/28/87	50,000	100,000	100
61 Long Range Water Program	5000	117,000	6/19/85	101,650	218,650	87
Grand Totals		96,733,379		75,492,527	172,225,906	78

Totals excluding #22 above -- C.E. Maguire Contractor -----

75,728,934 171,786,551 79

Appendix 3

UPDATED 1989 REPORT

Contract Name	Consultant	Contract #	Original MWRA Amount	Orig Auth Date	Total MWRA Amendments	Total MWRA Authorization	% Increase
1 Mettlesley Sewer Design	SEA	5346	1,183,737	12/6/84	7,216,018	8,399,755	610
2 Deer Island Secondary Trmt	Camp, Dresser & McKee	5526	4,757,285	4/3/86	12,086,532	16,843,817	254
3 Clinton Wastewater	Camp, Dresser & McKee	5250 & 5440	1,655,608	1/1/79	3,763,864	5,419,472	227
4 Nut Island Sludge Mgmt	Havens & Emerson	5660	1,275,784	1/9/81	1,094,461	2,370,245	86
5 Deer and Nut Island Marine	C.E. Maguire	5521	900,000	2/25/87	2,536,493	3,436,493	282
6 Residuals Mgmt Facilities	Black & Veatch	5664	5,435,357	8/27/86	4,370,736	9,806,093	80
7 Water Transmission Designs	Black & Veatch	5185	1,953,169	10/23/87	1,990,578	3,943,747	102
8 Boston Low Services	Black & Veatch	5120	328,261	8/23/84	427,441	755,702	130
9 Commercial Point/Fox Point	Hayden Wegman	5755	345,462	5/ /84	625,693	971,155	181
10 MIS Needs Assessment	Coopers & Lybrand	5906	310,000	10/1/86	610,000	920,000	197
11 MIS Oversight Services	Systems Builders	5922A	45,000	1/29/88	75,000	120,000	167
12 On-Shore Marine Transp	Parsons Brinkerhoff Quade Douglas	5519	490,000	9/16/87	1,131,779	1,621,779	231
13 Engineering Mgmt Services	Camp, Dresser & McKee	5853	1,000,000	11/ /84	861,432	1,861,432	86
14 Deer Island Lead Design Eng	Metcalf & Eddy	5534	24,000,000	7/13/88	4,252,051	28,252,051	18
15 Deer Island Early Site Prep	Bryant Associates	5528	1,340,949	3/30/88	639,606	1,980,555	48
16 CSO Technical Assistance	CH2M Hill	5790	50,000	4/2/86	200,000	250,000	400
17 Deer Island Electrical Equip	Alonzo B. Reed Co.	5510 & 5512	187,061	6/27/84	314,894	501,955	168
18 Technical Support Svcs	Cambridge Analytical Assoc	586-0930-11A	250,000	4/16/86	330,000	580,000	132
19 Deer Island Pump St	Havens and Emerson/P B O D	5452 & 5453	1,860,963	10/30/85	1,432,519	3,293,482	77
20 East Boston Pumping St	Metcalf and Eddy	5361	1,833,648	6/11/86	2,325,192	4,158,840	127
21 Deer Island Primary Sed	Beta Engineering	5471	379,480	6/7/85	263,345	642,825	69
22 Braintree/Weymouth Intercep	C. E. Maguire	5312	675,762	11/26/84	(140,484)	535,278	-21
23 Framingham Extension Sewer	Anderson-Nichols & Co.	5318	842,841	6/30/83	485,243	1,328,084	58
24 Hingham Pump Station	Anderson-Nichols and Co.	5370	358,943	6/24/82	310,691	669,634	87
25 Wastewater Metering Program	Whitman & Howard	5399	663,275	2/25/87	396,662	1,059,937	60
26 Water Supply and EIR	Wallace, Floyd	5001	4,112,583	2/9/82	1,585,401	5,697,984	39
27 Belle Island Siphon	Fay Spofford	5305	49,000	7/ /83	23,437	72,437	48
28 Sluice Gate Rehab	SEA	5255	141,600	12/16/87	15,585	157,185	11
29 EE/HVAC Services	Anderson Nichols	5270	75,000	1/28/87	75,000	150,000	100
30 Mechanical Eng Services	Havens & Emerson	5272	50,000	1/28/87	50,000	100,000	100
31 Structural Eng Services	DMC Engineering	5273	50,000	1/28/87	50,000	100,000	100
32 Environmental Testing Svcs	Energy & Environmental Eng	5275	100,000	1/28/87	100,000	200,000	100
33 Geotechnical Eng Services	Goldberg, Zoino & Assoc.	5276	50,000	1/28/87	50,000	100,000	100
34 Surveying Eng Services	Allen Demurjian Major & Nitsch	5277	50,000	1/28/87	50,000	100,000	100
35 Southern System Project	Metcalf & Eddy	5396	2,200,000	1/22/86	436,629	2,636,629	20
36 Water Transp. Facilities	CE Maguire	5525	1,200,000	1/29/86	977,737	2,177,737	81
37 Little Exam-Residual Sites	Boston Tittle Co.	5665	5,000	1/21/88	5,000	15,000	200
38 LEPA AC Services	Khafra Engineering	5801	75,000	1/28/87	75,000	150,000	100
39 Mechanical Eng Svcs	Richard D. Kimball Co.	5803	50,000	1/28/87	50,000	100,000	100
40 Structural Eng Svcs	Lin Associates	5804	50,000	1/28/87	50,000	100,000	100
41 Surveying Eng Svcs	Bryant Associates	5808	50,000	1/28/87	50,000	100,000	100
42 Long Range Water Program	Pioneer Planning/ESCAC	5000	117,000	6/19/85	101,650	218,650	87
Grand Totals			60,547,768		51,350,185	111,897,953	85

Appendix 4

1989 REPORT

Table # Contract Name

Firm Name

Contract#

Original Auth
-MWA orMDC

Total MWA
Amendments

Total Auth

% Increase

1 Wellesley Sewer Design	SEA	5346	1,183,737	7,216,018	8,399,755	610
2 Deer Island Secondary Trmt	Camp, Dresser & McKee	5526	4,757,285	10,488,132	15,245,417	220
3 Clinton Wastewater	Camp, Dresser & McKee	5250 & 5440	1,655,608	3,763,864	5,419,472	227
4 Nut Island Sludge Mgmt	Havens & Emerson	5660	1,275,784	1,094,461	2,370,245	86
5 Deer and Nut Island Marine	C.E. Maguire	5521	900,000	2,441,493	3,341,493	271
6 Residuals Mgt Facilities	Black & Veatch	5664	5,435,357	3,696,560	9,131,917	68
7 Water Transmission Designs	Black & Veatch	5185	1,953,169	1,252,216	3,205,385	64
8 Boston Low Services	Black & Veatch	5120	328,261	427,441	755,702	130
9 Commercial Point/Fox Point	Hayden Wegman	5755	345,462	334,246	679,708	97
10 MIS Needs Assessment	Coopers & Lybrand	5906	310,000	610,000	920,000	197
11 MIS Oversight Services	Systems Builders	5922A	45,000	75,000	120,000	167
12 On-Shore Marine Transp	Parsons Brinkerhoff Duade Douglas	5519	490,000	299,252	789,252	61
13 Engineering Mgmt Services	Camp, Dresser & McKee	5853	1,000,000	861,432	1,861,432	86
14 Deer Island Lead Design Eng	Metcalf & Eddy	5534	24,000,000	2,507,428	26,507,428	10
15 Deer Island Early Site Prep	Bryant Associates	5528	1,340,949	242,346	1,583,295	18
16 CSO Technical Assistance	CH2M Hill	5790	50,000	200,000	250,000	400
17 Deer Island Electrical Equip	Alonzo R. Reed Co.	5510 & 5512	187,061	314,894	501,955	168
18 Technical Support Svcs	Cambridge Analytical Assoc	586-0930-TIA	250,000	330,000	580,000	132
19 Deer Island Pump St	Havens and Emerson/P B Q D	5452 & 5453	1,860,963	766,786	2,627,749	41
20 East Boston Pumping St	Metcalf and Eddy	5361	1,833,648	661,897	2,495,545	36
21 Deer Island Primary Sed	Beta Engineering	5471	379,480	263,345	642,825	69
22 Braintree/Weymouth Intercep	C. E. Maguire	5312	675,762	254,500	930,262	38
23 Belle Island Siphon	Fay Spofford	5305	49,000	23,437	72,437	48
24 Framingham Sewer	Anderson Nichols	5318	842,841	383,762	1,226,603	46
25 Hingham Pumping Sta	Anderson Nichols	5370	358,943	64,352	423,295	18
26 Sluice Gate Rehab	SEA	5255	141,600	15,585	157,185	11
27 EE/HVAC Services	Anderson Nichols	5270	75,000	75,000	150,000	100
28 Mechanical Eng Services	Havens & Emerson	5272	50,000	50,000	100,000	100
29 Structural Eng Services	DMC Engineering	5273	50,000	50,000	100,000	100
30 Environmental Testing Svcs	Energy & Environmental Eng	5275	100,000	100,000	200,000	100
31 Geotechnical Eng Services	Goldberg, Zolno & Assoc	5276	50,000	50,000	100,000	100
32 Surveying Eng Services	Allen Demurjian Major & Nitsch	5277	50,000	50,000	100,000	100
33 Southern System Project	Metcalf & Eddy	5396	2,200,000	436,629	2,636,629	20
34 Wastewater Metering Prog	Whitman & Howard	5399	663,275	215,915	879,190	33
35 Water Transp Facilities	CE Maguire	5525	1,200,000	977,737	2,177,737	81
36 Little Exam-Residual Sites	Boston Title Co.	5665B	5,000	10,000	15,000	200
37 EE/HVAC Svcs	Khafr Engineering	5801	75,000	75,000	150,000	100
38 Mechanical Eng Svcs	Richard D. Kimball Co.	5803	50,000	50,000	100,000	100
39 Structural Eng Svcs	Lin Associates	5804	50,000	50,000	100,000	100
40 Surveying Eng Svcs	Bryant Associates	5808	50,000	50,000	100,000	100
41 Long Range Water Program	Pioneer Planning/WSCAC	5000	117,000	101,650	218,650	87
42 Water Supply & EIR 2020	WFEM	5001	4,112,583	1,585,401	5,697,984	39

Grand Totals-----

60,547,768

42,515,779

103,063,547

70

Spreadsheet Notes

1. The database for "1989 Report" is the 42 contracts analyzed in March 1989.
2. The database for "Updated 1989 Report" is the 42 contracts analyzed in March 1989 and amendments to those contracts through February 1990.
3. The database for "1990 Report" is the 42 contracts analyzed in March 1989, amendments to those contracts through February 1990, and 19 additional contracts.
4. The column "Original MWRA Amount" refers to the original authorized amount of each contract awarded by the MWRA. In the case of contracts originally awarded by the MDC, the "Original MWRA Amount" is the contract authorization (including any MDC amendments) assumed by the MWRA on July 1, 1985.
5. The column "Authorization Date" refers to the date on which contracts were originally authorized by either the MDC or the MWRA.
6. The column "Total MWRA Amendments" refers to amounts authorized by the MWRA.
7. The column "Total MWRA Authorizations" refers to the sum of "Original MWRA Amount" and "Total MWRA Amendments."

Appendix 5
(Tables 1-45)

TABLE 1

SEA Consultants, Inc.

Contract # 5346

Wellesley Extension Sewer Replacement Design

ORIGINAL CONTRACT AUTHORIZATION BY METROPOLITAN DISTRICT

COMMISSION (MDC) (December 6, 1984) ----- \$ 1,183,737

AMENDMENTS BY MWRA:

Amendment #1 (September 5, 1985)	\$	00*
Amendment #2 (October 29, 1986)		00*
Amendment #3 (December 23, 1986)		468,613
Amendment #4 (September 30, 1987)		285,991
Amendment #5 (May 19, 1988)		00*
Amendment #6 (September 14, 1988)		123,477
Amendment #7 (September 14, 1988)		6,337,937
Amendment #8 (September 13, 1989)		00*

Total of MWRA Amendments
(September, 1985 -- September, 1989) \$ 7,216,018

TOTAL CONTRACT AUTHORIZATION (December, 1984 -- September, 1989) --- ----\$ 8,399,755

MWRA amendments over a 48 month period
increased contract authorization by 610%.

*Time extension; no cost.

TABLE 2

Camp Dresser & McKee, Inc.

Contract # 5526

Secondary Treatment Facilities Plan for Deer Island

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (April 3, 1986) ----- \$ 4,757,285

AMENDMENTS BY MWRA:

Amendment #1 (December 23, 1986)	\$ 2,965,042
Amendment #2 (July 15, 1987)	2,286,000
Amendment #3 (December 16, 1987)	750,000
Amendment #4 (December 16, 1987)	500,000
Amendment #5 (January 28, 1988)	344,100
Amendment #6 (May 25, 1988)	3,641,390
Amendment #7 (September 14, 1988)	00*
Amendment #8 (November 30, 1988)	1,600,000
	<hr/>
Total of Amendments (December, 1986 -- November, 1988)	\$ <u>12,086,532</u>

TOTAL CONTRACT AUTHORIZATION (April, 1986 -- November, 1988) ----- \$ 16,843,817

MWRA amendments over a 32 month period
increased contract authorization by 254%.

*Time extension; no cost.

TABLE 3

Camp Dresser & McKee, Inc.

Contract # 5250 and # 5440

Design of Improvements to Clinton Wastewater
Treatment Plant and Sludge Landfill

ORIGINAL CONTRACT AUTHORIZATION BY MDC (1979) ----- \$ 1,539,653

AMENDMENT BY MDC:

Amendment #1 (January 12, 1984) \$ 115,955

Total of MDC Amendment (January, 1984) \$ 115,955

Total MDC Contract including Amendment ----- \$ 1,655,608

AMENDMENTS BY MWRA:

Amendment #2 (August 26, 1987) \$ 278,000

Amendment #3 (December 14, 1988) 3,485,864

Total of MWRA Amendments
(August, 1987 -- December, 1988) \$ 3,763,864

TOTAL CONTRACT AUTHORIZATION (1979 -- December, 1988) ----- \$ 5,419,472

MWRA amendments over a 16 month period increased contract authorization by <u>227%</u> .

TABLE 4

Havens and Emerson, Inc.

Contract # 5660

Nut Island Sludge Management Plan

ORIGINAL CONTRACT AUTHORIZATION BY MDC

(January 9, 1981) ----- \$ 777,300

AMENDMENTS BY MDC:

Amendment #1 (May 7, 1981)	\$ 43,850
Amendment #2 (May 14, 1981)	16,413
Amendment #3 (October 29, 1981)	69,556
Amendment #4 (February 16, 1984)	00*
Amendment #5 (April 11, 1985)	368,665

Total of MDC Amendments (May, 1981 -- April, 1985) \$ 498,484

Total MDC Contract including Amendments ----- \$ 1,275,784

AMENDMENTS BY MWRA:

Amendment #6 (October 16, 1985)	\$ 194,530
Amendment #7 (July 2, 1986)	469,320
Amendment #8 (April 29, 1987)	264,100
Amendment #9 (July 13, 1988)	166,511

Total of MWRA Amendments (October, 1985 -- July, 1988) \$ 1,094,461

TOTAL CONTRACT AUTHORIZATION (January, 1981 -- July, 1988) ----- \$ 2,370,245

MWRA amendments over a 33 month period
increased contract authorization by 86%.

*Time extension; no cost.

TABLE 5

CE Maguire, Inc.

Contract # 5521

Design of Marine Facilities at Deer Island and Nut Island

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (February 25, 1987) ----- \$ 900,000

AMENDMENTS BY MWRA:

Amendment #1 (March 11, 1988)	\$ 00*
Amendment #2 (June 22, 1988)	349,750
Amendment #3 (June 22, 1988)	2,091,743
Amendment #4 (July 12, 1989)	95,000

Total of Amendments (March, 1988 -- July, 1989) \$ 2,536,493

TOTAL CONTRACT AUTHORIZATION (February, 1987 -- July, 1989) ----- -\$ 3,436,493

MWRA amendments over a 29 month period
increased contract authorization by 282%.

*Time extension; no cost.

TABLE 6

Black & Veatch, Inc.

Contract # 5664

Residuals Management Facilities Plan

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (August 27, 1986) ----- \$ 5,435,357

AMENDMENTS BY MWRA:

Amendment #1 (April 16, 1987)	\$	00*
Amendment #2 (May 27, 1987)		163,575
Amendment #3 (October 23, 1987)		10,000
Amendment #3 (February 22, 1988)		00*
Amendment #4 (March 30, 1988)		974,300
Amendment #5 (May 25, 1988)		238,243
Amendment #6 (September 28, 1988)		2,310,442
Amendment #7 (July 12, 1989)		674,176
Amendment #8 (November 15, 1989)		00*
		<hr/>
Total of Amendments (April, 1987 -- November, 1989)	\$	<u>4,370,736</u>
TOTAL CONTRACT AUTHORIZATION (August, 1986 -- November, 1989)		----- \$ <u>9,806,093</u>

MWRA amendments over a 40 month period
increased contract authorization by 80%.

*Time extension; no cost.

TABLE 7

Black & Veatch, Inc.

Contract # 5185

Water Transmission Main Designs

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (October 23, 1987) ----- \$ 1,953,169

AMENDMENTS BY MWRA:

Amendment #1 (September 28, 1988)	\$ 1,252,216
Amendment #2 (March 22, 1989)	126,848
Amendment #3 (October 25, 1989)	611,514
	<hr/>
Total of Amendments (September, 1988 -- October, 1989)	\$ <u>1,990,578</u>

TOTAL CONTRACT AUTHORIZATION (October, 1987 -- October, 1989) ----- \$ 3,943,747

MWRA amendments over a 24 month period
increased contract authorization by 102%

TABLE 8

Black & Veatch, Inc.

Contract # 5120

Boston Low Service

ORIGINAL CONTRACT AUTHORIZATION BY MDC (August 23, 1984) ----- \$ 328,261

AMENDMENTS BY MWRA:

Amendment #1 (September 28, 1988) \$ 427,441

Amendment #2 (October 11, 1989) 00*

Total of MWRA Amendments
(September, 1988 -- October, 1989) \$ 427,441

TOTAL CONTRACT AUTHORIZATION (August, 1984 -- October, 1989) ----- \$ 755,702

MWRA amendments over a 14 month period
increased contract authorization by 130%

*Time extension; no cost.

TABLE 9

Hayden-Wegman, Inc.

Contract # 5755

Commercial Point/Fox Point

ORIGINAL CONTRACT AUTHORIZATION BY MDC

(May 1984) ----- \$ 295,819

AMENDMENT BY MDC:

Amendment #1 (March, 1985) \$ 49,643

Total of MDC Amendment (March, 1985) \$ 49,643

Total MDC Contract including Amendment ----- \$ 345,462

AMENDMENTS BY MWRA:

Amendment #2 (September 30, 1987) \$ 325,000

Amendment #3 (January 28, 1988) 9,246

Amendment #4 (June 28, 1989) 291,447

Total of MWRA Amendments
(September, 1987 -- June, 1989) ----- \$ 625,693

TOTAL CONTRACT AUTHORIZATION (May, 1984 -- June, 1989) ----- \$ 971,155

MWRA amendments over a 21 month period
increased contract authorization by 181%.

TABLE 10

Coopers & Lybrand

Contract # 5906

MIS Needs Assessment

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (October 1, 1986) ----- \$ 310,000

AMENDMENTS BY MWRA:

Amendment #1 (January 13, 1988) \$ 630,000

Amendment #2 (January 27, 1988) (20,000)

Total of Amendments (January, 1988) \$ 610,000

TOTAL CONTRACT AUTHORIZATION (October, 1986 -- January, 1988) ----- \$ 920,000

MWRA amendments over a 16 month period
increased contract authorization by 197%.

TABLE 11

System Builders, Inc.

Contract # 5922A

Management Information System Oversight Services

ORIGINAL CONTRACT AUTHORIZATION BY MWRA EXECUTIVE DIRECTOR
(January 29, 1988) ----- \$ 45,000

AMENDMENT BY MWRA:

Amendment #1 (May 25, 1988) \$ 75,000

Total of Amendment (May, 1988) \$ 75,000

TOTAL CONTRACT AUTHORIZATION (January, 1988 -- May, 1988) ----- \$ 120,000

One MWRA amendment
increased contract authorization by 167%.

TABLE 12

Parsons Brinckerhoff Quade & Douglas, Inc.

Contract # 5519

On-Shore Marine Transportation Facilities Design Project

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (September 16, 1987) ----- \$ 490,000

AMENDMENTS BY MWRA:

Amendment #1 (March 9, 1988)	\$ 217,352
Amendment #2 (July 27, 1988)	81,900
Amendment #3 (March 22, 1989)	700,527
Amendment #4 (April 12, 1989)	231,000
Amendment #5 (June 28, 1989)	50,000
Amendment #4 (July 12, 1989) [adjustment]	(149,000)
	<hr/>
Total of Amendments (March, 1988 -- July, 1989)	\$ <u>1,131,779</u>

TOTAL CONTRACT AUTHORIZATION (September, 1987 -- July, 1989) ----- \$ 1,621,779

MWRA amendments over a 22 month period
increased contract authorization by 231%.

TABLE 13

Camp Dresser & McKee, Inc.

Contract # 5853

Engineering Management Services

ORIGINAL CONTRACT AUTHORIZATION BY MDC
(November, 1984) ----- \$ 1,000,000

AMENDMENTS BY MWRA:

Amendment #1 (December 11, 1985)	\$ 100,000
Amendment #1 (February 19, 1986)**	480,000
Amendment #2 (October 29, 1986)	197,000
Amendment #3 (January 18, 1989)	84,432
Total of MWRA Amendments (December, 1985 -- January, 1989)	<hr/> \$ <u>861,432</u>

TOTAL CONTRACT AUTHORIZATION (November, 1984 -- January, 1989) ----- \$ 1,861,432

MWRA amendments over a 37 month period
increased contract authorization by 86%.

**Although approved on different dates, the Authority recorded \$580,000 as a single amendment.

TABLE 14

Metcalf & Eddy, Inc.

Contract # 5534

Lead Design Engineer, Deer Island Related Construction

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (July 13, 1988) ----- \$ 24,000,000

AMENDMENTS BY MWRA:

Amendment #1 (November 9, 1988)	\$ 740,000
Amendment #2 (January 4, 1989)	1,767,428
Amendment #3 (March 8, 1989)	496,100
Amendment #4 (November 29, 1989)	630,523
Amendment #5 (December 13, 1989)	618,000
	<hr/>
Total of Amendments (November, 1988 -- December, 1989)	\$ <u>4,252,051</u>

TOTAL CONTRACT AUTHORIZATION (July, 1988 -- December, 1989) ----- \$ 28,252,051

MWRA amendments over an 18 month period
increased contract authorization by 18%.

TABLE 15

Bryant Associates, Inc.

Contract # 5528

Deer Island Early Site Preparation Design

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (March 30, 1988) ----- \$ 1,340,949

AMENDMENTS BY MWRA:

Amendment #1 (January 4, 1989)	\$ 242,346
Amendment #2 (March 22, 1989)	123,760
Amendment #3 (July 12, 1989)	38,500
Amendment #4 (November 15, 1989)	235,000

Total of Amendments (January, 1989 -- November, 1989) \$ 639,606

TOTAL CONTRACT AUTHORIZATION (March, 1988 -- November, 1989) ----- \$ 1,980,555

MWRA amendments over a 21 month period
increased contract authorization by 48%.

TABLE 16

CH2M Hill Southeast, Inc.

Contract # 5790

CSO Technical Assistance

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (April 2, 1986) ----- \$ 50,000

AMENDMENT BY MWRA:

Amendment #1 (October 1, 1986) \$ 200,000

Total of Amendment (October, 1986) \$ 200,000

TOTAL CONTRACT AUTHORIZATION (April, 1986 -- October, 1986) ----- \$ 250,000

One MWRA amendment
increased contract authorization by 400%.

TABLE 17

Alonzo B. Reed, Inc.

Contract # 5510 and # 5512

Deer Island Electrical Equipment Upgrade

ORIGINAL CONTRACT AUTHORIZATION BY MDC

(June 27, 1984) ----- \$ 180,484

AMENDMENT BY MDC:

Amendment #1 (December 10, 1984) \$ 6,577

Total of MDC Amendment (December, 1984) \$ 6,577

Total MDC Contract including Amendment ----- \$ 187,061

AMENDMENTS BY MWRA:

Amendment #2 (August 6, 1985) \$ 12,857

Final retainage paid (April 29, 1987) --

Amendment #3 (April 29, 1987) 241,635

Amendment #4 (April 29, 1987) 27,000

Amendment #5 (July 15, 1988) 33,402

Total of MWRA Amendments (August, 1985 -- July, 1988) \$ 314,894

TOTAL CONTRACT AUTHORIZATION (June, 1984 -- July, 1988) ----- \$ 501,955

MWRA amendments over a 35 month period
increased contract authorization by 168%.

TABLE 18

Cambridge Analytical Associates, Inc.

Contract # S86-0930-T1A

Technical Support Services

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (April 16, 1986) ----- \$ 250,000

AMENDMENT BY MWRA:

Amendment #1 (December 23, 1986) \$ 330,000

Total of Amendment (December, 1986) \$ 330,000

TOTAL CONTRACT AUTHORIZATION (April, 1986 -- December, 1986) ----- \$ 580,000

One MWRA amendment
increased contract authorization by 132%.

TABLE 19

Havens and Emerson, Inc./Parsons Brinckerhoff Quade & Douglas, Inc.

Contract # 5452 and # 5453

Deer Island Power and Pump Station Improvements

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (October 30, 1985) ----- \$ 1,860,963

AMENDMENTS BY MWRA:

Amendment #1 (April 2, 1986)	\$ 766,786
Amendment #2 (May 24, 1989)	230,685
Amendment #3 (May 24, 1989)	22,000
Amendment #4 (December 13, 1989)	317,125
Amendment #5 (February 28, 1990)	95,923

Total of Amendments (April 2, 1986 -- February, 1990) \$ 1,432,519

TOTAL CONTRACT AUTHORIZATION (October, 1985 -- February, 1990) ----- \$ 3,293,482

MWRA amendments over a 54 month period
increased contract authorization by 77%.

TABLE 22

CE Maguire, Inc.

Contract # 5312

Braintree/Weymouth Interceptor System Design and EIR

ORIGINAL CONTRACT AUTHORIZATION BY MDC (November 26, 1984) ----- \$ 675,762

AMENDMENTS BY MWRA:

Amendment #1 (November 10, 1986)	\$ 00*
Amendment #2 (August 26, 1987)	254,500
Amendment #3 (November 15, 1989)	(394,984)
	<hr/>
Total of MWRA Amendments (November, 1986 -- November, 1989)	\$ <u>(140,484)</u>

TOTAL CONTRACT AUTHORIZATION (November, 1984 -- November, 1989) ----- \$ 535,278

MWRA amendments over a 36 month period
decreased contract authorization.

*Time extension; no cost.

TABLE 23

Anderson-Nichols and Company, Inc.

Contract # 5318

Framingham Extension Relief Sewer Design

ORIGINAL CONTRACT AUTHORIZATION BY MDC

(June 30, 1983) ----- \$ 842,841

AMENDMENT BY MDC:

Amendment #1 (October 26, 1984) \$ 00*

Total of MDC Amendment (October 26, 1984) \$ 00

Total MDC Contract including Amendment ----- \$ 842,841

AMENDMENTS BY MWRA:

Amendment #2 (September 26, 1985) \$ 255,097

Amendment #3 (June 1, 1987) 00*

Amendment #4 (June 1, 1987) 00*

Amendment #5 (December 9, 1987) 128,665

Amendment #6 (May 12, 1988) 00*

Amendment #7 (March 22, 1989) 00*

Amendment #8 (July 12, 1989) 101,481

Total of MWRA Amendments
(September, 1985 -- July, 1989) \$ 485,243

TOTAL CONTRACT AUTHORIZATION (June, 1983 -- July, 1989) ----- \$ 1,328,084

MWRA amendments over a 45 month period
increased contract authorization by 58%.

*Time extension; no cost.

TABLE 24

Camp, Dresser & McKee, Inc.

Contract # 5355

Charlestown Pumping Station Design

ORIGINAL CONTRACT AUTHORIZATION BY MDC

(March 8, 1984) ----- \$ 855,558

AMENDMENT BY MDC:

Amendment #1 (April 14, 1985) \$ 00*

Total of MDC Amendment (April, 1985) \$ 00

Total MDC Contract including Amendment ----- \$ 855,558

AMENDMENTS BY MWRA:

Amendment #2 (October 16, 1985) \$ 29,854

Amendment #3 (April 26, 1989) 2,118,625

Total of MWRA Amendments

(October, 1985 -- April, 1989) \$ 2,148,479

TOTAL CONTRACT AUTHORIZATION (March, 1984 -- April, 1989) ----- \$ 3,004,037

MWRA amendments over a 42 month period
increased contract authorization by 251%.

*Time extension; no cost.

TABLE 25

Morrison-Knudsen Engineers, Inc.
(formerly International Engineering, Inc.)

Contract # 5030

Aqueduct Transfer Hydroelectric Project

ORIGINAL CONTRACT AUTHORIZATION BY MDC

(July 1, 1982) ----- \$ 270,000

AMENDMENTS BY MDC:

Amendment #1 (October 18, 1984) \$ 23,000

Amendment #2 (May 9, 1985) 32,000

Total of MDC Amendments (October, 1984 -- May, 1985) \$ 55,000

Total MDC Contract including Amendments ----- \$ 325,000

AMENDMENTS BY MWRA:

Amendment #3 (October 17, 1987) \$ 51,000

Amendment #4 (January 4, 1989) 83,500

Amendment #5 (May 24, 1989) 60,700

Total of MWRA Amendments
(October, 1987 -- May, 1989) \$ 195,200

TOTAL CONTRACT AUTHORIZATION (July, 1982 -- May, 1989) ----- \$ 520,200

MWRA amendments over a 19 month period
increased contract authorization by 60%.

TABLE 26

Kaiser Engineers, Inc.

Contract # 5535

Program/Construction Management Services for
Deer Island Wastewater Treatment Plant and Facilities

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (April 13, 1988) ----- \$ 17,910,256
(18,436,925)**

AMENDMENTS BY MWRA:

Amendment #1 (September 28, 1988) \$ 980,420
(453,751)**

Amendment #2 (May 10, 1989) 887,459

Total of Amendments (September, 1988 -- May, 1989) \$ 1,867,879
(1,341,210)**

TOTAL CONTRACT AUTHORIZATION (April, 1988 -- May, 1989) ----- \$ 19,778,135

MWRA amendments over a 14 month period
increased contract authorization by 10.4%.

**The original contract authorization included \$526,660 for a management information system which, prior to contract execution, the MWRA had determined to acquire by a separate procurement. The Kaiser contract was approved for the higher amount even though MWRA officials had concluded that the MIS work would be deleted. Amendment #1 accomplished this reduction, but added nearly \$1 million in extra work. The table uses the actual figures for which the MWRA contracted, net of the MIS work which the MWRA did not expect Kaiser to perform. The amount below reflects the MIS figures included in contract documents.

TABLE 27

Bethel, Duncan and Associates

Contract # 5181

Meter Modernization

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (February 25, 1987) ----- \$ 373,955

AMENDMENT BY MWRA:

Amendment #1 (September 13, 1989) \$ 315,089

Total of Amendment (September, 1989) \$ 315,089

TOTAL CONTRACT AUTHORIZATION (February, 1987 -- September, 1989) --- \$ 689,044

One MWRA amendment
increased contract authorization by 84%.

TABLE 28

Cambridge Analytical Associates

Contract # 12

Industrial Waste Sample Analysis

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (August, 1987) ----- \$ 1,200,000

AMENDMENT BY MWRA:

Amendment #1 (March 22, 1989) \$ 300,000

Total of Amendment (March, 1989) \$ 300,000

TOTAL CONTRACT AUTHORIZATION (August, 1987 -- March, 1989) ----- \$ 1,500,000

One MWRA amendment
increased contract authorization by 25%.

TABLE 29

R. Zoppo Co., Inc.

Contract # S026

Hauling and Disposal of
North System Grit and Screenings

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (February 19, 1986) ----- \$ 1,715,082

AMENDMENTS BY MWRA:

Amendment #1 (November 30, 1988)	\$ 181,710
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Amendment #2 (October 25, 1989)	876,009
---------------------------------	---------

Total of Amendments (November, 1988 -- October, 1989)	<u>\$ 1,057,719</u>
---	---------------------

TOTAL CONTRACT AUTHORIZATION (February, 1986 -- October, 1989) ----- \$ 2,772,801

MWRA amendments over a 45 month period
increased contract authorization by 62%.

TABLE 30

Jon-Jay Associates

Contract # 38

Unemployment Cost Control

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (February, 1988)¹ ----- \$ 1,500

AMENDMENT BY MWRA:

Amendment #1 (September 13, 1989) \$ 1,000

Total of Amendment (September, 1989) \$ 1,000

TOTAL CONTRACT AUTHORIZATION (February, 1988 -- September, 1989) --- \$ 2,500

One MWRA amendment
increased contract authorization by 67%.

¹Date of hire.

TABLE 31

GHR Engineering

Contract # 5114

Lynn Pipeline Soil

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (July 13, 1988) ----- \$ 139,447

AMENDMENT BY MWRA:

Amendment #1 (April 12, 1989) \$ 36,300

Total of Amendment (April, 1989) \$ 36,300

TOTAL CONTRACT AUTHORIZATION (July, 1988 -- April, 1989) ----- \$ 175,747

One MWRA amendment
increased contract authorization by 26%.

TABLE 32

CWB Associates
Contract # 5274
Materials Testing Service

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (October, 1986) ----- \$ 100,000

AMENDMENTS BY MWRA:

Amendment #1 (\$	00*
Amendment #2 (May, 1989)		24,000
Amendment #3 (August 16, 1989)		60,000
		<hr/>
Total of Amendments (-- August, 1989)	\$ <u>84,000</u>

TOTAL CONTRACT AUTHORIZATION (October, 1986 -- August, 1989) ----- \$ 184,000

MWRA amendments over a 35 month period
increased contract authorization by 84%.

*Change in scope; no cost.

TABLE 33

HMM Associates

Contract # 5291

Technical Assistance

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (January 19, 1989) ----- \$ 75,000

AMENDMENT BY MWRA:

Amendment #1 (November 29, 1989) \$ 60,606

Total of Amendment (November, 1989) \$ 60,606

TOTAL CONTRACT AUTHORIZATION (January, 1985 -- November, 1989) ----- \$ 135,606

One MWRA amendment
increased contract authorization by 81%.

TABLE 34

Anderson-Nichols and Co., Inc.

Contract # 5370

Hingham Pump Station and Force Main

ORIGINAL CONTRACT AUTHORIZATION BY METROPOLITAN DISTRICT

COMMISSION (MDC) (June 24, 1982) \$ 133,921

AMENDMENTS BY MDC:

Amendment #1 (December 9, 1982) \$ 52,586

Amendment #2 (December 8, 1983) 43,730

Amendment #3 [Not executed] 00

Amendment #4 (July 12, 1984) 128,706

Total of MDC Amendments

\$ 225,022

Total MDC Contract including Amendments ----- \$ 358,943

AMENDMENTS BY MWRA:

Amendment #5 (June 1, 1986) \$ 64,352

Amendment #6 (February 25, 1987) 00*

Amendment #7 (September 24, 1987) 00*

Amendment #8 (February 3, 1988) 00*

Amendment #9 (August 9, 1988) 00*

Amendment #10 (January 25, 1989) 00*

Amendment #11 (October 11, 1989) 246,339

Total of MWRA Amendments

(June, 1986 -- October, 1989) \$ 310,691

TOTAL CONTRACT AUTHORIZATION (June, 1982 -- October, 1989) ----- \$ 669,634

MWRA amendments over a 41 month period
increased contract authorization by 87%.

*Time extension; no cost.

TABLE 35

Whitman & Howard, Inc.

Contract # 5399

Wastewater Metering Program

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (February 25, 1987) ----- \$ 663,275

AMENDMENTS BY MWRA:

Amendment #1 (March 30, 1988)	\$ 215,915
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Amendment #2 (September 27, 1989)	180,747
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Total of Amendments (March, 1988 -- September, 1989)	<u>\$ 396,662</u>
--	-------------------

TOTAL CONTRACT AUTHORIZATION (February, 1987 -- September, 1989) --- \$ 1 059,937

MWRA amendments over a 32 month period
increased contract authorization by 60%.

TABLE 36

Tillinghast, Nelson & Warren, Inc.

Contract # 5553

Risk Management Program

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (September 14, 1988) ----- \$ 184,880

AMENDMENTS BY MWRA:

Amendment #1 (May 30, 1989)	\$ 29,000
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Amendment #2 (November 15, 1989)	30,600
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Total of Amendments (May, 1989 -- November, 1989)	<u>\$ 59,600</u>
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TOTAL CONTRACT AUTHORIZATION (September, 1988 -- November, 1989) ---- \$ 244,480

MWRA amendments over a 15 month period
increased contract authorization by 32%.

TABLE 37

E.C. Jordan Co.

Contract # 5555

Interim Disinfection Facilities -- Deer Island

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (January 27, 1988) ----- \$ 410,000

AMENDMENT BY MWRA:

Amendment #1 (October 25, 1989)	\$ 285,000
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Total of Amendment (October, 1989)	<u>\$ 285,000</u>
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TOTAL CONTRACT AUTHORIZATION (January, 1988 -- October, 1989) ----- \$ 695,000

MWRA amendments over a 22 month period increased contract authorization by <u>70%</u> .
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TABLE 38

New England Fertilizer Co.

Contract # 5652

Sludge Pelletizing Facility

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (March 15, 1988) ----- \$ 7,110,572

AMENDMENT BY MWRA:

Amendment #1 (November 15, 1989) \$ 5,187,572

Total of Amendment (November, 1989) \$ 5,187,572

TOTAL CONTRACT AUTHORIZATION (March, 1988 -- November, 1989) ----- \$ 12,298,144

One MWRA amendment
increased contract authorization by 73%.

TABLE 39

V.F.L. Technology Corp.

Contract # 5674

Deer Island Scum

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (October 28, 1987) ----- \$ 775,000

AMENDMENT BY MWRA:

Amendment #1 (June 7, 1989) \$ 1,425,000

Total of Amendment (June, 1989) \$ 1,425,000

TOTAL CONTRACT AUTHORIZATION (October, 1987 -- June, 1989) ----- \$ 2,200,000

One MWRA amendment
increased contract authorization by 184%.

TABLE 40

CH2MHill

Contract # 5791

CSO Facilities

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (November 4, 1987) ----- \$ 1,825,931

AMENDMENTS BY MWRA:

Amendment #1 (April 27, 1988)	\$ 4,678,434
Amendment #2 (July 12, 1989)	2,270,000
Amendment #3 (February 28, 1990)	<u>1,893,555</u>

Total of Amendments (April, 1988 -- February, 1990) \$ 8,841,989

TOTAL CONTRACT AUTHORIZATION (November, 1987 -- February, 1990) ---- \$ 10,667,920

MWRA amendments over a 28 month period
increased contract authorization by 484%.

TABLE 41

E.C. Jordan Co.

Contract # 5817

Technical Services -- FRSA

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (October 26, 1988) ----- \$ 250,000

AMENDMENTS BY MWRA:

Amendment #1 (July 12, 1989) \$ 200,000

Amendment #2 (November 29, 1989) 300,000

Total of Amendments (July, 1989 -- November, 1989) \$ 500,000

TOTAL CONTRACT AUTHORIZATION (October, 1988 -- November, 1989) ----- \$ 750,000

MWRA amendments over a 13 month period
increased contract authorization by 200%.

TABLE 42

Charles T. Main, Inc.

Contract # 5855

Nut Island Switchgear

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (July 29, 1987) ----- \$ 40,000

AMENDMENT BY MWRA:

Amendment #1 (August 16, 1989) \$ 9,383

Total of Amendment (August, 1989) \$ 9,383

TOTAL CONTRACT AUTHORIZATION (July, 1987 -- August, 1989) ----- \$ 49,383

One MWRA amendment
increased contract authorization by 23%.

TABLE 43

Frederick R. Harris

Contract # 5596

Personnel Ferry Design

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (May 10, 1989) ----- \$ 437,685

AMENDMENT BY MWRA:

Amendment #1 (January 3, 1990) \$ 780,912

Total of Amendment (January, 1990) \$ 780,912

TOTAL CONTRACT AUTHORIZATION (May, 1989 -- January, 1990) ----- \$ 1,218,597

One MWRA amendment
increased contract authorization by 178%.

TABLE 44

Wallace, Floyd, Associates

Contract # 5001

Water Supply & EIR

ORIGINAL CONTRACT AUTHORIZATION BY MDC

(February 9, 1984) ----- \$ 3,962,583

AMENDMENTS BY MDC:

Amendment #1 (October 13, 1983) \$ 00*

Amendment #2 (December 8, 1983) 150,000

Amendment #3 (October 13, 1984) 00*

Total of MDC Amendments

(October, 1983 -- October, 1984) \$ 150,000

Total MDC Contract including Amendments ----- \$ 4,112,583

AMENDMENTS BY MWRA:

Amendment #4 (July 7, 1985) \$ 1,085,401

Amendment #5 (June 10, 1987) 500,000

Amendment #6 (July 28, 1988) 00*

Amendment #7 (March 8, 1989) 00*

Total of MWRA Amendments

(July, 1985 -- March, 1989) \$ 1,585,401

TOTAL CONTRACT AUTHORIZATION (December, 1984 -- September, 1989) --- \$ 5,697,984

MWRA amendments over a 45 month period
increased contract authorization by 39%.

*Time extension; no cost.

TABLE 45

Malcolm Pirnie, Inc.

Contract # 5529

DP-9 Deer Island Primary Treatment Facilities

ORIGINAL CONTRACT AUTHORIZATION BY MWRA (May 24, 1989) ----- \$ 2,455,745

AMENDMENT BY MWRA:

Amendment #1 (February 14, 1990) \$ 986,614

Total of Amendment (February, 1990) \$ 986,614

TOTAL CONTRACT AUTHORIZATION (May, 1989 -- February, 1990) ----- \$ 3,442,359

One MWRA amendment
increased contract authorization by 40%.

